

# SHADE & SHAPE

MAKING SENSE OF COLOR, LIGHT, AND FORM

## **Dr. Raymond Soneira**

If, as Dr. Raymond Soneira insists, we are in one of the most exciting periods of display technology, then he is arguably the era's most important advocate. And his enthusiasm for our measuring technology makes Konica Minolta one of the principal figures in this hi-tech renaissance!



Dr. Soneira, founder and president of [DisplayMate Technologies](#), observes the display industry with an uncompromising eye toward accuracy. His company produces proprietary test patterns that are used by manufacturers, test labs and hundreds of publications worldwide for testing and evaluating display hardware - to the extent that DisplayMate has become a widely accepted industry standard. His selection of the [Konica Minolta CS-1000 Spectroradiometer](#) for in-depth analyses is well documented in a series of articles published last fall in a number of magazines and online publications. In the articles, Dr. Soneira describes his in-depth comparison of CRT, LCD, plasma and DLP (digital light processing) display technologies.

"Finding an accurate and reliable instrument to do photometry and colorimetry is one of the most important decisions for anyone working with displays, whether you are a manufacturer, test lab or calibrator. The first thing I did was to ask other researchers for their own assessments of different instruments. Then I simultaneously compared a number of them on various CRT, LCD, plasma and DLP displays to check their accuracy and consistency," Dr. Soneira told Shade and Shape. "The Konica Minolta instruments performed beautifully."

Konica Minolta equipment, he adds, has long been noted for its measurement consistency. In fact, based on Dr. Soneira's recommendations, a number of major U.S., publications have adopted Konica Minolta instruments for their editorial

reviews of monitors and projects.

The renaissance to which Dr. Soneira refers is based on the fact that whereas just ten years ago the CRT was the only prevalent display technology, today's technologies include LCD, Plasma, DLP and LCoS (Liquid Crystal on Silicon). His goal in the "Display Technology Shoot out," as he calls the series, was to see how each technology differs and to provide some guidelines for those who will ultimately need to choose one over the other.

All of the photometry and colorimetry measurements in the shoot-out were made with the Konica Minolta CS-1000. Its 1° measurement angle was of particular importance to Dr. Soneira, who says that such a narrow angle is important for the accurate analyses of flat panel technologies.

In addition, Konica Minolta, he says, has a firm grounding in what standards must be met in order to produce the kind of equipment that he uses every day. "You'd be surprised how many professionals are out there, even on the manufacturing level, who aren't aware of the NIST [National Institute of Standards and Technology] and VESA [the Video Electronics Standards Association] measurement standards. It's shocking." He adds that there are many photometers and color analyzers from other manufacturers which provide readings that have been found to be off by as much as 35 percent for flat panel technologies.

Konica Minolta is enormously proud to be associated with Dr. Soneira and his [DisplayMate Technologies Corporation](#). His illustrious career includes a Ph.D in physics from Princeton University, five years with the renowned Institute for Advanced Study in Princeton, and five more with AT&T Bell Laboratories, where he was a principal investigator in their Computer Systems Research Laboratory. Earlier in his career, Dr. Soneira also worked for the CBS Television network Engineering and Development Department, where he designed and installed color television broadcast equipment.

In fact, it was radio and television that was Raymond Soneira's first love in a science-fascinated youth. He tinkered around with electronics before delving into theoretical physics. After leaving academia to do research in robotics and artificial intelligence, he says, he left once the corporations involved in these activities started looking more at the immediate bottom line rather than the long-term results that physics research can produce.

"So after I left Bell Labs, I needed to find something to do that I liked, could do really well, and that wasn't already being done elsewhere," says Dr. Soneira, who is also fascinated with computer science and artificial intelligence. The result of his search was DisplayMate Technologies.

[In his four-part, exhaustively researched series](#), Dr. Soneira is careful to point out that the display technology renaissance cannot last forever simply because development costs are skyrocketing, limiting the number of new players that can challenge the already existing high image quality technologies. But he does conclude by outlining a number of image quality improvements for the future. As far as we're concerned, that's a confirmation that no matter where the technology eventually leads, Konica Minolta will always be along for the ride. We think Dr. Soneira would agree.